

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – < 4,
BaO	> 2.5 – 6,
with SrO + BaO	> 3, and
ZnO	0 – 0.5,

and essentially no alkali oxides.

3. (Previously Amended) An aluminoborosilicate glass according to Claim 1, containing at most 5% by weight MgO based on oxide.

4. (Previously Amended) An aluminoborosilicate glass according to Claim 1, containing at least 60% by weight SiO<sub>2</sub> based on oxide.

5. (Previously Amended) An aluminoborosilicate glass according to Claim 1, containing more than 11% by weight MgO, CaO, SrO and BaO together based on oxide.

6. (Currently Amended) An alkali-free aluminoborosilicate glass consisting essentially of by weight % based on oxide,

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – 1.5,
BaO	> 1.5 – 6,
with SrO + BaO	> 3,
ZnO	0 – < 2,
ZrO <sub>2</sub>	0 – 2,
TiO <sub>2</sub>	0 – 2,
With ZrO <sub>2</sub> + TiO <sub>2</sub>	0 – 2,
As <sub>2</sub> O <sub>3</sub>	0 – 1.5,
Sb <sub>2</sub> O <sub>3</sub>	0 – 1.5,
SnO <sub>2</sub>	0 – 1.5,
CeO <sub>2</sub>	0 – 1.5,

Cl <sup>-</sup>	0 – 1.5,
F <sup>-</sup>	0 – 1.5,
SO <sub>4</sub> <sup>2-</sup>	0 – 1.5, and
Wherein As <sub>2</sub> O <sub>3</sub> + Sb <sub>2</sub> O <sub>3</sub> + SnO <sub>2</sub> + CeO <sub>2</sub> + Cl <sup>-</sup> + F <sup>-</sup> + SO <sub>4</sub> <sup>2-</sup>	0 – 1.5,

and essentially no alkali oxides.

7. (Original) An aluminoborosilicate glass according to Claim 1, which is free or essentially free of arsenic oxide and antimony oxide.

8. (Original) An aluminoborosilicate glass according to claim 1, having a ratio of MgO/CaO by weight of less than 1.

9. (Original) An aluminoborosilicate glass according to claim 1, having a ratio of MgO/CaO by weight of less than 0.7.

10. (Previously Amended) An aluminoborosilicate glass according to claim 1, containing at least 5% by weight CaO based on oxide.

11. (Previously Amended) An aluminoborosilicate glass according to claim 1, containing > 7 to ≤11% by weight B<sub>2</sub>O<sub>3</sub> based on oxide.

12. (Previously Amended) An aluminoborosilicate glass according to claim 1, containing > 2.5% to ≤5% by weight BaO based on oxide.

13. (Previously Amended) An aluminoborosilicate glass according to claim 1, containing more than 3% by weight SrO and BaO together based on oxide.

14. (Currently Amended) An aluminoborosilicate glass according to claim 1, containing more than 0 to up to 0.5% by weight ZnO based on oxide.

15. (Currently Amended) An aluminoborosilicate glass according to claim 1, containing more than 0 to up to 1.5% by weight ZnO based on oxide.

16. (Currently Amended) An alkali-free aluminoborosilicate glass consisting essentially of by weight % based on oxide,

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – 1.5,
BaO	> 1.5 – 6,
with SrO + BaO	> 3,
ZnO	0 – < 2,
ZrO <sub>2</sub>	≤ 0.5, and
TiO <sub>2</sub>	≤ 0.5,

BI and essentially no alkali oxides.

17. (Previously Amended) An aluminoborosilicate glass according to Claim 2, containing at most 5% by weight MgO based on oxide.

18. (Previously Amended) An aluminoborosilicate glass according to Claim 2, containing at least 60% by weight SiO<sub>2</sub> based on oxide.

19. (Previously Amended) An aluminoborosilicate glass according to Claim 2, containing more than 11% by weight based on oxide MgO, CaO, SrO and BaO is greater together.

20. (Currently Amended) An alkali-free aluminoborosilicate glass consisting essentially of by weight % based on oxide,

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – < 4,
BaO	> 2.5 – 6,

with SrO + BaO	> 3,
ZnO	0 – 0.5,
ZrO <sub>2</sub>	0 – 2,
TiO <sub>2</sub>	0 – 2,
with ZrO <sub>2</sub> + TiO <sub>2</sub>	0 – 2,
As <sub>2</sub> O <sub>3</sub>	0 – 1.5,
Sb <sub>2</sub> O <sub>3</sub>	0 – 1.5,
SnO <sub>2</sub>	0 – 1.5,
CeO <sub>2</sub>	0 – 1.5,
Cl <sup>-</sup>	0 – 1.5,
F <sup>-</sup>	0 – 1.5,
SO <sub>4</sub> <sup>2-</sup>	0 – 1.5, and

Wherein As<sub>2</sub>O<sub>3</sub> + Sb<sub>2</sub>O<sub>3</sub> + SnO<sub>2</sub> + CeO<sub>2</sub> + Cl<sup>-</sup>  
+ F<sup>-</sup> + SO<sub>4</sub><sup>2-</sup> 0 – 1.5,

and essentially no alkali oxides.

21. (Original) An aluminoborosilicate glass according to Claim 2, which is free or essentially free of arsenic oxide and antimony oxide.

22. (Original) An aluminoborosilicate glass according to claim 2, having a ratio of MgO/CaO by weight of less than 1.

23. (Original) An aluminoborosilicate glass according to claim 2, having a ratio of MgO/CaO by weight of less than 0.7.

24. (Previously Amended) An aluminoborosilicate glass according to claim 2, containing at least 5% by weight CaO based on oxide.

25. (Previously Amended) An aluminoborosilicate glass according to claim 2, containing > 7 to ≤11% by weight B<sub>2</sub>O<sub>3</sub> based on oxide.


26. (Previously Amended) An aluminoborosilicate glass according to claim 2, containing  
> 2.5% to ≤5% by weight BaO based on oxide.

27. (Previously Amended) An aluminoborosilicate glass according to claim 2, containing more than 3% by weight SrO and BaO together based on oxide.

28. (Currently Amended) An aluminoborosilicate glass according to claim 2, containing more than 0 to up to 0.5% by weight ZnO based on oxide.

29. (Currently Amended) An aluminoborosilicate glass according to claim 1 2, containing more than 0 to up to 1.5% <2.0% by weight ZnO based on oxide.

30. (Currently Amended) An alkali-free aluminoborosilicate glass consisting essentially of by weight % based on oxide,



SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – < 4,
BaO	> 2.5 – 6,
with SrO + BaO	> 3,
ZnO	0 – 0.5,
ZrO <sub>2</sub>	≤ 0.5, and
TiO <sub>2</sub>	≤ 0.5,

and essentially no alkali oxides.

31. (Previously Amended) An aluminosilicate glass according to claim 2, containing up to 3% by weight SrO based on oxide.

32. (Original) A substrate glass in thin-film photovoltaics or a display comprising an alkali-free aluminoborosilicate glass according to claim 1.

33. (Original) A TFT display or a thin-film solar cell comprising an alkali-free aluminoborosilicate glass according to claim 1.

34. (Original) A substrate glass in thin-film photovoltaics or a display comprising an alkali-free aluminoborosilicate glass according to claim 2.

35. (Original) A TFT display or a thin-film solar cell comprising an alkali-free aluminoborosilicate glass according to claim 2.

36. (Currently Amended) An alkali-free aluminoborosilicate glass containing less than 1500 ppm alkali metal oxides and consisting essentially of by weight % based on oxide,

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – 1.5,
BaO	> 1.5 – 6,
with SrO + BaO	> 3, and
ZnO	0 – < 2,

B1 and essentially no alkali oxides.

37. (Currently Amended) An alkali-free aluminoborosilicate glass containing less than 1500 ppm alkali metal oxides and consisting essentially of by weight % based on oxide,

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – < 4,
BaO	> 2.5 – 6,
with SrO + BaO	> 3, and
ZnO	0 – 0.5,

and essentially no alkali oxides.

Please cancel claims 38-45 without prejudice of disclaimer.

46. (Currently Amended) An aluminoborosilicate glass according to claim 40 6 containing Sb<sub>2</sub>O<sub>3</sub>.

47. (Currently Amended) An aluminoborosilicate glass according to claim 42 20 containing  $\text{Sb}_2\text{O}_3$ .

B1 48. (Previously Added) An aluminoborosilicate glass according to claim 1 that has a density of less than  $2.6 \text{ g/cm}^3$ .

Please enter the following new claims:

49. (New) An alkali-free aluminoborosilicate glass consisting of by weight % based on oxide,


B2

$\text{SiO}_2$	> 58 – 65,
$\text{B}_2\text{O}_3$	> 6 – 11.5,
$\text{Al}_2\text{O}_3$	> 14 – 20,
$\text{MgO}$	> 3 – 6,
$\text{CaO}$	> 4.5 – 10,
$\text{SrO}$	0 – 1.5,
$\text{BaO}$	> 1.5 – 6,
with $\text{SrO} + \text{BaO}$	> 3,
$\text{ZnO}$	0 – < 2,
$\text{ZrO}_2$	0 – 2,
$\text{TiO}_2$	0 – 2,
With $\text{ZrO}_2 + \text{TiO}_2$	0 – 2,
$\text{As}_2\text{O}_3$	0 – 1.5,
$\text{Sb}_2\text{O}_3$	0 – 1.5,
$\text{CeO}_2$	0 – 1.5,
$\text{Cl}^-$	0 – 1.5,
$\text{F}^-$	0 – 1.5,
$\text{SO}_4^{2-}$	0 – 1.5, and
Wherein $\text{As}_2\text{O}_3 + \text{Sb}_2\text{O}_3 + \text{CeO}_2 + \text{Cl}^- + \text{F}^- + \text{SO}_4^{2-}$	0 – 1.5,

and essentially no alkali oxides.

50. (New) An alkali-free aluminoborosilicate glass consisting of by weight % based on oxide,

$\text{SiO}_2$	> 58 – 65,
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B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – 1.5,
BaO	> 1.5 – 6,
with SrO + BaO	> 3,
ZnO	0 – < 2,
ZrO <sub>2</sub>	0 – 2,
TiO <sub>2</sub>	0 – 2,
With ZrO <sub>2</sub> + TiO <sub>2</sub>	0 – 2,
As <sub>2</sub> O <sub>3</sub>	0 – 1.5,
Sb <sub>2</sub> O <sub>3</sub>	0 – 1.5,
SnO <sub>2</sub>	0 – 1.5,
CeO <sub>2</sub>	0 – 1.5,
F <sup>-</sup>	0 – 1.5,
SO <sub>4</sub> <sup>2-</sup>	0 – 1.5, and
Wherein As <sub>2</sub> O <sub>3</sub> + Sb <sub>2</sub> O <sub>3</sub> + SnO <sub>2</sub> + CeO <sub>2</sub> + F <sup>-</sup> + SO <sub>4</sub> <sup>2-</sup>	0 – 1.5,

and essentially no alkali oxides.

51. (New) An alkali-free aluminoborosilicate glass consisting of by weight % based on oxide,

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – < 4,
BaO	> 2.5 – 6,
with SrO + BaO	> 3,
ZnO	0 – 0.5,
ZrO <sub>2</sub>	0 – 2,
TiO <sub>2</sub>	0 – 2,
with ZrO <sub>2</sub> + TiO <sub>2</sub>	0 – 2,
As <sub>2</sub> O <sub>3</sub>	0 – 1.5,
Sb <sub>2</sub> O <sub>3</sub>	0 – 1.5,
CeO <sub>2</sub>	0 – 1.5,
Cl <sup>-</sup>	0 – 1.5,
F <sup>-</sup>	0 – 1.5,



$\text{SO}_4^{2-}$  0 – 1.5, and

Wherein  $\text{As}_2\text{O}_3 + \text{Sb}_2\text{O}_3 + \text{CeO}_2 + \text{Cl}^- + \text{F}^- + \text{SO}_4^{2-}$  0 – 1.5,

and essentially no alkali oxides.

52. (New) An alkali-free aluminoborosilicate glass consisting of by weight % based on oxide,

$\text{SiO}_2$  > 58 – 65,  
 $\text{B}_2\text{O}_3$  > 6 – 11.5,  
 $\text{Al}_2\text{O}_3$  > 14 – 20,  
 $\text{MgO}$  > 3 – 6,  
 $\text{CaO}$  > 4.5 – 10,  
 $\text{SrO}$  0 – < 4,  
 $\text{BaO}$  > 2.5 – 6,  
 with  $\text{SrO} + \text{BaO}$  > 3,  
 $\text{ZnO}$  0 – 0.5,  
 $\text{ZrO}_2$  0 – 2,  
 $\text{TiO}_2$  0 – 2,  
 with  $\text{ZrO}_2 + \text{TiO}_2$  0 – 2,  
 $\text{As}_2\text{O}_3$  0 – 1.5,  
 $\text{Sb}_2\text{O}_3$  0 – 1.5,  
 $\text{SnO}_2$  0 – 1.5,  
 $\text{CeO}_2$  0 – 1.5,  
  
 $\text{F}^-$  0 – 1.5,  
 $\text{SO}_4^{2-}$  0 – 1.5, and

Wherein  $\text{As}_2\text{O}_3 + \text{Sb}_2\text{O}_3 + \text{SnO}_2 + \text{CeO}_2 + \text{F}^- + \text{SO}_4^{2-}$  0 – 1.5,

and essentially no alkali oxides.

53. (New) An alkali-free aluminoborosilicate glass consisting of by weight % based on oxide,

$\text{SiO}_2$  > 58 – 65,  
 $\text{B}_2\text{O}_3$  > 6 – 11.5,  
 $\text{Al}_2\text{O}_3$  > 14 – 20,  
 $\text{MgO}$  > 3 – 6,  
 $\text{CaO}$  > 4.5 – 10,  
 $\text{SrO}$  0 – 1.5,  
 $\text{BaO}$  > 1.5 – 6,

with SrO + BaO	> 3,
ZnO	0 – < 2,
ZrO <sub>2</sub>	0 – 2,
TiO <sub>2</sub>	0 – 2,
With ZrO <sub>2</sub> + TiO <sub>2</sub>	0 – 2,
As <sub>2</sub> O <sub>3</sub>	0 – 1.5,
Sb <sub>2</sub> O <sub>3</sub>	0 – 1.5,
SnO <sub>2</sub>	0 – 1.5,
Cl <sup>-</sup>	0 – 1.5,
F <sup>-</sup>	0 – 1.5,
SO <sub>4</sub> <sup>2-</sup>	0 – 1.5, and
Wherein As <sub>2</sub> O <sub>3</sub> + Sb <sub>2</sub> O <sub>3</sub> + SnO <sub>2</sub> + Cl <sup>-</sup> + F <sup>-</sup> + SO <sub>4</sub> <sup>2-</sup>	0 – 1.5,

and essentially no alkali oxides.

54. (New) An alkali-free aluminoborosilicate glass consisting of by weight % based on oxide,

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – < 4,
BaO	> 2.5 – 6,
with SrO + BaO	> 3,
ZnO	0 – 0.5,
ZrO <sub>2</sub>	0 – 2,
TiO <sub>2</sub>	0 – 2,
with ZrO <sub>2</sub> + TiO <sub>2</sub>	0 – 2,
As <sub>2</sub> O <sub>3</sub>	0 – 1.5,
Sb <sub>2</sub> O <sub>3</sub>	0 – 1.5,
SnO <sub>2</sub>	0 – 1.5,
Cl <sup>-</sup>	0 – 1.5,
F <sup>-</sup>	0 – 1.5,
SO <sub>4</sub> <sup>2-</sup>	0 – 1.5, and
Wherein As <sub>2</sub> O <sub>3</sub> + Sb <sub>2</sub> O <sub>3</sub> + SnO <sub>2</sub> + Cl <sup>-</sup> + F <sup>-</sup> + SO <sub>4</sub> <sup>2-</sup>	0 – 1.5,

and essentially no alkali oxides.

55. (New) An alkali-free aluminoborosilicate glass consisting of by weight % based on oxide,

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – 1.5,
BaO	> 1.5 – 6,
with SrO + BaO	> 3,
ZnO	0 – < 2,
ZrO <sub>2</sub>	0 – 2,
TiO <sub>2</sub>	0 – 2,
With ZrO <sub>2</sub> + TiO <sub>2</sub>	0 – 2,
As <sub>2</sub> O <sub>3</sub>	0 – 1.5,
Sb <sub>2</sub> O <sub>3</sub>	0 – 1.5,
SnO <sub>2</sub>	0 – 1.5,
CeO <sub>2</sub>	0 – 1.5,
Cl <sup>-</sup>	0 – 1.5,
F <sup>-</sup>	0 – 1.5,
SO <sub>4</sub> <sup>2-</sup>	0 – 1.5, and
Wherein As <sub>2</sub> O <sub>3</sub> + Sb <sub>2</sub> O <sub>3</sub> + SnO <sub>2</sub> + CeO <sub>2</sub> + Cl <sup>-</sup> + F <sup>-</sup> + SO <sub>4</sub> <sup>2-</sup>	0 – 1.5,

and essentially no alkali oxides, and wherein the glass does not contain at least one of ZrO<sub>2</sub> or TiO<sub>2</sub>.

56. (New) An alkali-free aluminoborosilicate glass consisting of by weight % based on oxide,

SiO <sub>2</sub>	> 58 – 65,
B <sub>2</sub> O <sub>3</sub>	> 6 – 11.5,
Al <sub>2</sub> O <sub>3</sub>	> 14 – 20,
MgO	> 3 – 6,
CaO	> 4.5 – 10,
SrO	0 – < 4,
BaO	> 2.5 – 6,
with SrO + BaO	> 3,
ZnO	0 – 0.5,
ZrO <sub>2</sub>	0 – 2,
TiO <sub>2</sub>	0 – 2,
with ZrO <sub>2</sub> + TiO <sub>2</sub>	0 – 2,

As <sub>2</sub> O <sub>3</sub>	0 – 1.5,
Sb <sub>2</sub> O <sub>3</sub>	0 – 1.5,
SnO <sub>2</sub>	0 – 1.5,
CeO <sub>2</sub>	0 – 1.5,
Cl <sup>-</sup>	0 – 1.5,
F <sup>-</sup>	0 – 1.5,
SO <sub>4</sub> <sup>2-</sup>	0 – 1.5, and

Wherein As<sub>2</sub>O<sub>3</sub> + Sb<sub>2</sub>O<sub>3</sub> + SnO<sub>2</sub> + CeO<sub>2</sub> + Cl<sup>-</sup>  
+ F<sup>-</sup> + SO<sub>4</sub><sup>2-</sup> 0 – 1.5,

and essentially no alkali oxides, and wherein the glass does not contain at least one of ZrO<sub>2</sub> or TiO<sub>2</sub>.